

ENHANCEMENT OF PERFORMANCE OF A CONDUCTIVE WIRE IN A MULTILAYERED SUBSTRATE

Abstract

An electronic structure having wiring, and an associated method of designing the structure, for limiting a temperature gradient in the wiring. The electronic structure includes a substrate having a layer that includes a first and second wire which do not physically touch each other. The first and second wires are adapted to be at an elevated temperature due to Joule heating in relation to electrical current density in the first and second wires. The first wire is electrically and thermally coupled to the second wire by an electrically and thermally conductive structure that exists outside of the layer. The width of the second wire is tailored so as to limit a temperature gradient in the first wire to be below a threshold value that is predetermined to be sufficiently small so as to substantially mitigate adverse effects of electromigration in the first wire.